High voltage insulation testers
MI 3215 TeraOhmHP 15 kV

High Voltage Insulation / Continuity / Earth

The MI 3215 TeraOhmHP 15 kV is a high power, portable, battery or mains powered test instrument with excellent IP protection (IP65), designed for analysing insulation resistance by using high DC test voltages of up to 15 kV. Because of its robustness (CAT IV measuring category) and high immunity to radiated EM fields, it is best suited for demanding industrial environments. Touch screen or key manipulation via menu-driven LCD enables easy and transparent selection of different measurement methods and easy entry of data. Newly designed test leads have coded banana connectors for proper connection and locking to protect them against unwanted or accidental removal.

MEASURING FUNCTIONS

- Insulation resistance measurement;
- Diagnostic test (PI, DAR, DD);
- Step voltage test;
- Withstanding voltage test (DC) up to 15 kV;
- Voltage and frequency measurement up to 999 V TRMS;
- Capacitance measurements.

KEY FEATURES

- Insulation resistance measurements of up to 35 TΩ.
- Safety rated category up to CAT IV 1000 V to 3000 m.
- Dual-case design.
- Coded banana connectors with locking feature.
- Newly designed HV crocodiles with a better grip.
- Li-ion battery 4400 mAh.
- Adjustable test voltage (50 V...15 kV) in 50 V and 100 V steps.
- Maximum short circuit/charge current: >6mA.
- Charging rate for capacitive load <4s / µF at 15 kV (mains supply); 6.3s / µF (battery supply).
- Discharging rate for capacitive load <1.6s / µF at 15 kV.
- 8 GB memory SD card for data saving.
- Burn or breakdown mode.
- Programmable timers.
- Automatic discharge of test object after finished measurement.
- Live voltage detection > 30 V
- IP65 case rating.
- User-friendly and intuitive operation.
- High voltage breakdown detection.
- Programmable AUTO SEQUENCEs.
- Auto adjustment function.
- Measurement results in numerical and graphical form.
- PC software MESM for downloading and analysing test results and for test report printing.
- Isolated RS-232 and USB communication ports, Bluetooth interface.
- High quality accessories, including shielded test leads.
- High EM interferences protection: Input AC current noise rejection 8 mA, input AC voltage noise rejection 1 kV
- Averaging of results (Off, 5, 10, 30 , 60, 100, 200).
- Mains and rechargeable battery power supply.

APPLICATION

- Power transformers;
- Measuring transducers in distribution networks;
- Testing insulation resistances of rotating machinery and cables;
- Production line periodic testing and maintenance;
- Troubleshooting and analysis of all kinds of insulation problems;
- High voltage generators;
- Surge arrestors.

STANDARDS

Electromagnetic compatibility
- EN 61326-1

Safety
- EN 61010-1 (instrument);
- EN 61010-2-030;
- EN 61010-2-034;
- EN 61010-031 (accessories).

METREL®

TECHNICAL SPECIFICATION

FUNCTION	Measuring range	Resolution	Accuracy
Insulation resistance Riso - measuring ranges	0.01 MΩ ... 9.99 MΩ	10 kΩ	
	10.0 MΩ ... 99.9 MΩ	100 kΩ	
	100 MΩ ... 999 MΩ	1 MΩ	
	1.00 GΩ ... 9.99 GΩ	10 MΩ	
	10.0 GΩ ... 99.9 GΩ	100 MΩ	
	100 GΩ ... 999 GΩ	1 GΩ	
	1.00 TΩ ... 9.99 TΩ	10 GΩ	
	10.0 TΩ ... 35.0 TΩ	100 GΩ	
Measuring range in dependence on nominal voltage (Un)	<100 V	100 GΩ	
	<250 V	200 GΩ	
	<500 V	500 GΩ	
	<1000 V	1 TΩ	
	<2500 V	2 TΩ	
	<5000 V	5 TΩ	
	<10 kV	10 TΩ	
	≤15 kV	35 TΩ	
Accuracy in dependence of test voltage (at typical Riso values)	5 GΩ 100 GΩ	100 V	±(5 % of reading) ±(13 % of reading)
	25 GΩ 500 GΩ	500 V	±(5 % of reading) ±(13 % of reading)
	50 GΩ 1 TΩ	1 kV	±(5 % of reading) ±(13 % of reading)
	100 GΩ 2 TΩ	2 kV	±(5 % of reading) ±(13 % of reading)
	250 GΩ 5 TΩ	5 kV	±(5 % of reading) ±(13 % of reading)
	1 TΩ 20 TΩ	10 kV	±(5 % of reading) ±(20 % of reading)
	1.5 TΩ 30 TΩ	15 kV	±(5 % of reading) ±(20 % of reading)
Current	0 nA ... 9.99 nA	10 pA	±(5 % of reading + 7 D)
	10 nA ... 99.9 nA	100 pA	±(5 % of reading)
	100 nA ... 999 nA	1 nA	
	1.00 µA ... 9.99 µA	10 nA	
	10.0 µA ... 99.9 µA	100 nA	
	100 µA ...999 µA	1 µA	
	1.00 mA ... 6.00 mA	10 µA	
Test voltage	30 V ... 999 V	1 V	±(3 % of reading + 3 D)
	1.00 kV ... 9.99 kV	10 V	
	10.0 kV ... 16.0 kV	100 V	
Voltage	30.0 V ... 199.9 V	0.1 V	±(2 % of reading + 3 D)
	200 V ... 999 V	1 V	
Frequency	45.0 Hz ... 65.0 Hz	0.1 Hz	±(0.2 % of reading + 1 D)
Capacitance	20 nF ... 999 nF	1 nF	±(5 % of reading + 3 D)
	1.00 µF ... 9.99 µF	10 nF	
	10.0 µF ... 50.0 µF	100 nF	
DAR	0.01 ... 9.99	0.01	
	10.0 ... 100.0	0.1	
PI	0.01 ... 9.99	0.01	
	10.0 ... 100.0	0.1	
DD	0.01 ... 9.99	0.01	
	10.0 ... 100.0	0.1	
Battery power supply	14.4 V; 4.4 Ah Li-ion pack		
Battery charging time	4 hours		
Mains power supply	100 ... 240 VAC, 45 ... 65 Hz, 100 VA		
Operating mains power supply	90 ... 260 VAC, 45 ... 65 Hz, 100 VA		
Protection class	Reinforced insulation		
Measuring category	1000 V CAT IV		
COM port	Bluetooth, USB, and RS-232		
Display	4.3'' (10.9 cm) 480 × 272 pixels TFT colour		
Degree of protection	IP 65 (case closed) / IP 40 (case open)		
Dimensions	36 cm x 16 cm x 33 cm		
Weight	6.3 kg, without accessories		

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Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery.
Subject to technical change without notice.

ORDERING INFORMATION

Standard set MI 3215 ST

- Instrument MI 3215 TeraOhmHP 15 kV
- A 1794 3M HV test lead, 3m, Black banana plug/Crocodile clip - Shielded
- A 1795 3M HV test lead, 3m, Blue banana plug/Crocodile clip
- A 1793 3M HV test lead, 3m, Red banana plug/Crocodile clip
- A 1728 Power cable, 2m, 3x0.75mm2, IEC C13/Type E connector
- A 1727 USB cable TypeA/B
- A 1772 Soft carrying bag Size: XXL
- Metrel ES Manager BASIC Licence*
- SW 1201 Metrel ES Manager (program installation) *
- Short form instruction manual
- Calibration certificate

*SW 1201 Metrel ES Manager and all documentation can be downloaded free of charge from Metrel Web server (https://www.metrel.si/en/downloads/) or Metrel Documentation center (https://doc.metrel.si)

OPTIONAL ACCESSORIES

Photo	Order No.	Acc. decription
	A 1793 3M	HV test lead
	A 1793 5M	
	A 1793 10M	
	A 1793 15M	
	A 1794 3M	HV test lead - Shielded
	A 1794 5M	
	A 1794 10M	
	A 1794 15M	
	A 1795 3M	HV test lead
	A 1795 5M	
	A 1795 10M	
	A 1795 15M	